

USSR

UDC: 519.2

AVRAMENKO, V. I., PERLIK, V. I.

"A Method for Approximate Calculation of Functions of Multi-dimensional Normal Distributions"

Dnepropetrovsk, Ob odnom metode priblizhennogo vychisleniya funktsiy mnogomernykh normal'nykh raspredeleniy (cf. English above), Dnepropetrovsk University, 1972, 16 pp, bibl. of four titles (manuscript deposited in VINITI, No 5368-73, Dep. from 8 Jan 73) (from RZh-Kibernetika, No 5, May 73, abstract No 5V278 Dep by the authors)

Translation: An approximate method is presented for calculating multidimensional normal distribution functions. By simple transformations, multidimensional conditional distributions are introduced into consideration which differ from normal, and their moments are determined. In view of the similarity of such distributions to normal, it becomes feasible to construct algorithms for approximate calculation of multidimensional normal distribution functions based on replacing

1/2

USSR

AVRAMENKO, V. I., PERLIK, V. I., Ob odnom metode priblizhennogo vychisleniya funktsiy mnogomernykh normal'nykh raspredeleniy, Dnepropetrovsk, 1972, 16 pp.

conditional distribution by normal distribution with mathematical expectation, mean square deviations and correlation moments of the initial distribution. The paper gives the results of numerous calculations by the proposed approximate formulas which show accuracy sufficient for engineering calculations.

2/2

- 77 -

Analysis and Testing

USSR

UDC 620.172.25

PERLIN, I. L., YERMANOK, M. Z.

"Methods of Calculating the Indexes of Relative Elongating and Constricting Strains"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Light Alloy Technology. Scientific and Technical Bulletin of the VILS Institute), 1970, No 5, pp 53-54 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41941)

Translation: The ratio of the indexes used to estimate plasticity was investigated. The unfoundedness of applying the "relative constriction" index --  $\psi_1 = F_i - F_f/F_i$  -- to estimate the plastic characteristics of finished intermediate products and the expediency of using the "relative uniform constriction" index --  $\psi_{i.equ.} = F_i - F_{neck}/F_i$  -- are demonstrated where  $F_i$  and  $F_f$  are the initial and final transverse cross sections,  $F_{neck}$  is the cross sectional area of the sample at the time of necking. A basis is provided for estimating plasticity by means of the integral strain indexes, in particular,  $\ln F_i/F_{neck}$  and  $\ln F_i/F_f$ .

Miscellaneous

USSR

UDC 669.1.003:620.4

VOSKOBOYNIKOV, V. G., PERLOV, N. I., KURBATOVA, N. O., MEL'NIK, N. A.

"Prospects for Utilization of the Thermal Energy of Nuclear Reactors at Ferrous Metallurgy Plants"

Moscow, Stal', No 11, Nov 72, pp 1052-1055.

Abstract: Based on a review of the literature and information materials, as well as the authors' own studies and technical and economic evaluation, possibilities are analyzed of direct utilization of the thermal energy of nuclear reactors at metallurgical plants. Great interest is being shown in this problem in Japan and West Germany, due to the low reserves of fossil fuel and its high price. In the USA, although nuclear power engineering has been broadly developed, the use of nuclear reactor heat in ferrous metallurgy is considered unfavorable, primarily due to the lower cost of conventional fuel. Versions of the utilization of nuclear reactor heat at metallurgical plants of various structures with blast furnaces and with direct iron reduction shops have been studied for the conditions present in the USSR. The use of the heat of nuclear reactors at metallurgical plants leads to elimination of the share of natural gas from the balance. The low cost of natural gas in the USSR raises doubts as

1/2

USSR

VOSKOBOYNIKOV, V. G., et al., Stal', No 11, Nov 72, pp 1052-1055

to the expediency of this suggestion. An economic criterion is suggested for the effectiveness of the use of nuclear reactor heat in ferrous metallurgy (in comparison to natural gas). The question of the economic effectiveness of the use of nuclear reactors must be solved considering all its aspects on the scale of the entire economy of the nation. At the present time, the problem has not yet gone beyond the stage of scientific research and experimental work.

2/2

- 69 -

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SIMPLIFIED METHOD FOR CALCULATING THE EQUILIBRIUM COMPOSITION OF  
NITROGEN OXIDES OVER NITRIC ACID SOLUTIONS -U-  
AUTHOR--(03)-ATROSHCHENKO, V.I., BAGDASARYAN, V.S., PERLOV, YE.I.  
COUNTRY OF INFO--USSR  
SOURCE--ARM. KHIM. ZH. 1970, 23(2), 107-13  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NITROGEN OXIDE, NITRIC ACID, CHEMICAL EQUILIBRIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1995/1319 STEP NO--UR/0426/70/023/002/0107/0113  
CIRC ACCESSION NO--AP0116779

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0116779

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EQUATIONS WERE STUDIED, ALONG WITH METHODS FOR THEIR SOLUTION, FOR CALCG. THE EQUIL. COMPN. OF THE N OXIDES OVER HNO SUB3 SOLNS. AS A FUNCTION OF THE PARTIAL PRESSURE OF THE OXIDES AND THEIR DEGREE OF OXIDN. IN THE STARTING GAS MIXT. CALCNS. WERE MADE WITH AND WITHOUT TAKING INTO ACCOUNT THE CHANGE IN THE GAS VOL. DUE TO THE REACTION OF THE OXIDES WITH THE ACID SOLNS. NOMOGRAMS ARE GIVEN TO SIMPLIFY THE CALCNS. FACILITY: GOS. NAUCH.-ISSLED. INST. AVTOMAT. PROIZVOD. PROTSESS. KHIM. PROM. TSVET. MET., KIROVAKAN, USSR.

UNCLASSIFIED

USSR

UDC: 621.315.3

SHCHERBAKOV, G. P., NEKRASOV, V. A., PERLOVA, A. I.

"On the Problem of Heat Treating Grades MLS60N and MLS72N Microwires"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 83-89 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V418)

Translation: A method is proposed for heat treating microwire in glass insulation by moving a microfurnace along the wire. A peculiarity of the method is the brevity of wire heating (tenths of a second). A study is made of the effect which repeated heating-cooling cycles, tension, temperature and time of heating have on the resistance, temperature coefficient of resistance and mechanical characteristics of specimens. Resumé.

1/1



USSR

UDC 539.3

PERLOVA, N. G.

"On Infinitely Small Bends of Ribbed Toroidal Surfaces of Rotation"

V sb. Mat. analiz. i yego pril. T. 4 (Mathematical Analysis and Its Application. Vol. 4 -- Collection of Works), Rostov-na-Donu, Rostov University, 1972, pp 95-109 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V122)

Translation: A necessary and sufficient condition is established for the first order nonrigidity of a ribbed toroidal surface of rotation with a meridian of an arbitrary number of straight links along with a sufficiency condition for the possibility of the continuation of infinitely small first-order bends of these surfaces into infinitely small second-order bends. Examples of ribbed toroidal surfaces are given that have first-order non-rigidity, second-order nonrigidity, and second-order rigidity. Author's abstract.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--REACTION KINETICS OF TERTIARY AMINES WITH PHOSGENE -U-

AUTHOR-(02)-STREPIKHEYEV, YU.A., PERLOVA, T.G.

COUNTRY OF INFO--USSR

SOURCE--TR. MOSK KHIM.-TEKHNOL. INST. 1969, NO. 61, 128-32

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TERTIARY AMINE, PHOSGENE, REACTION KINETICS, ABSORPTION  
SPECTRUM, COMPLEX COMPOUND, LOW TEMPERATURE EFFECT, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/1141

STEP NO--UR/0000/69/000/061/0128/0132

CIRC ACCESSION NO--AT0119995

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119995

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM KINETIC CURVES OF THE TITLE REACTION RUN IN (CH SUB2 CL) SUB2 WITH PR SUB3 N AND COCL SUB2 AND THE ABSORPTION SPECTRUM CHANGES IN THE SYSTEM DURING THE REACTION AS COMPARED WITH SIMILAR DATA OF THE REACTION INVOLVING PHCH SUB2 NET SUB2 WITH COCL SUB2 AND PHNET SUB2 WITH COCL SUB2, IT WAS CONCLUDED THAT THE AMINES REACT BY FORMING INITIALLY AN UNSTABLE ADDUCT OR COMPLEX STABLE ONLY AT TEMPS. BELOW MINUS 20DEGREES; THE MOST STABLE ONE WAS THAT WITH ET SUB3 N, WHILE OTHERS COULD BE ISOLATED OR DETECTED ONLY BELOW MINUS 50DEGREES. THE RATE OF COMPLEX FORMATION WAS MUCH GREATER THAN THAT OF ITS DECOMP. AND THE LATTER IS THE RATE DETG. STEP. RATES OF REACTION WERE TABULATED FOR ET SUB3 N, PR SUB3 N, PHCH SUB2 NET SUB2, AND PHNET SUB2 FOR TEMPS. FROM 60DEGREES UP TO 40DEGREES. THE ACTIVATION ENERGIES FOR THE REACTIONS OF THE ABOVE AMINES WERE CALCD. TO BE, RESP., 17.2, 10.5, 6.35, AND 25 KCAL PER MOLE. THE REACTIVITY OF THE AMINES COULD BE DIRECTLY CORRELATED WITH THEIR NUCLEOPHILICITIES.

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UDC 621.394.622.2(088.8)

SIROBABA, Ya. Ya., POTAPOV, Ye. P., PERLYA, Ya. Z., BURTSEV, B. V.

"A Device for Cadence Synchronization"

USSR Author's Certificate No 258368, Filed 7 Feb 68, Published 24 Apr 70 (from  
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D96 P)

Translation: This Author's Certificate introduces a device for cadence synchroni-  
zation of radio line receivers with noise-like phase-keyed signals. The unit con-  
tains a pseudorandom sequence discriminator and a controlled oscillator. To increase  
resistance to noise interferences and eliminate ambiguities, the controlled oscil-  
lator is connected through a frequency divider to a phase shifter module, the output  
of the discriminator also being connected to this module through a filter and an  
integrator. The output of the phase shifter module is connected to a pulse shaper  
which is connected to a pseudorandom sequence generator. Resumé.

1/1

- 198 -

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PREPARATION AND STUDY OF LOCAL HETEROGENEITIES IN OXIDE  
SEMICONDUCTORS -U-  
AUTHOR--(02)-PERLYGIN, A.I., ORESHKIN, P.T. P  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 16-18  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ZINC FERITE, IMPURITY LEVEL, ELECTROLYTIC DEPOSITION, METAL  
ION, CRYSTAL DEFECT, MICROHARDNESS, SEMICONDUCTOR CONDUCTIVITY,  
DIELECTRIC CONSTANT, DIELECTRIC LOSS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0194 STEP NO--UR/0139/70/013/002/0016/0018  
CIRC ACCESSION NO--AT0105270

UNCLASSIFIED

USSR

UDC: 666.764.32

IGNATOVA, T. S., BELYAKOVA, N. P., PERMIKINA, N. M., SEMKINA, N. V.,  
MYAKISHEVA, N. A., and YEVDOKIMOVA, Z. U., Eastern Institute of Refractories

"Effect of Technological Factors on the Density and Microstructure of  
Corundum Ceramics Containing 1% Titanium Oxide"

Moscow, Ogneupory, No 8, 70, pp 32-35

Abstract: This study demonstrates the dependence of the microstructure and the density of corundum ceramics on the method of grinding, the dispersity of the silica, the method of molding and the annealing temperatures of the finished product. A higher dispersity, vibratory grinding, high annealing temperatures, and  $TiO_2$  additions promote the formation of a macrocrystalline structure, which in turn is responsible for the greater heat resistance of the material. A higher dispersity of the silica increases the intensity of

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2/2 029

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0105270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HETEROGENEITIES WERE PRODUCED BY USING THE METHOD OF METAL ION ELECTROTRANSFER IN AQ. SOLN. DIFFERENT CONCENTRATIONS OF  $Fe^{2+}$ ,  $Fe^{3+}$ ,  $Co^{2+}$ ,  $Cr^{3+}$ ,  $Mn^{2+}$ ,  $Ni^{2+}$ ,  $Zn^{2+}$ , AND  $Cd^{2+}$  WERE USED WITH A POLYCRYST. FERRITE, COMPN.  $Fe_2O_3 \cdot 0.5CaO \cdot 0.5MgO \cdot 0.5Al_2O_3$  AND  $ZnO$  13PERCENT. AFTER COATING THE SAMPLE SURFACE WITH A POLYSTYRENE MASK, THE ELECTROTRANSFER WAS CARRIED OUT AT DIFFERENT C.D.S. (5-50 MA-CM PRIME2) FOR 10 HR. MICROHARDNESS, MICROSTRUCTURE, AND ELEC. PROPERTIES WERE DETD. THE INTRODUCED IMPURITIES CONC. ON THE EDGES OF PORES AND OTHER DEFECTS. THE IMPURITY REGIONS ARE CHARACTERIZED BY INCREASED MICROHARDNESS (2 OR MORE TIMES). IN MOST CASES THE REGIONS HAVE N TYPE COND. THE AV. RESISTIVITY AFTER ELECTROTRANSFER DECREASES, WHILE DIELEC. LOSS AND DIELEC. CONST. INCREASE, IN PARTICULAR AT LOW FREQUENCIES.

FACILITY: RYAZAN: RADIOTEKH. INST., RYAZAN, USSR.

UNCLASSIFIED

USSR

IGNATOVA, T. S., et al, Ogneupory, No 8, 70, pp 32-35

crystallization at high temperatures and initiates recrystallization of corundum at a much lower annealing temperature. Vibratory grinding intensifies recrystallization and the formation of a macrocrystalline structure, which causes loosening of the body and decreases the density. It appears that the higher thermal resistance and lower strength of corundum parts with macrocrystalline structures are related to some increase in apparent porosity.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--THE SURFACE TENSION OF  $\text{SiO}_2$ ,  $\text{BaO}$ ,  $\text{B}_2\text{O}_3$   $\text{O}_2$   $\text{SiO}_3$ , ENAMEL, MELTS  
AND THEIR ADHESION TO CHROMIUM, NICKEL STEELS -U-  
AUTHOR-(03)-PERMINOV, A.A., POPEL, S.I., POLTARAK, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZASHCHITA METALLOV. JAN.-FEB. 1970, 6, (1), 97-100  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--SURFACE TENSION, ENAMEL, FLUID PROPERTY, CERAMIC COATING,  
CHROMIUM NICKEL STAINLESS STEEL, SILICA, BARIUM OXIDE, BORON OXIDE,  
ADHESION STRENGTH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/0309 STEP NO--UR/0365/70/006/001/0097/0100  
CIRC ACCESSION NO--AP0129541



2/2 024

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129541

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATIONS WERE MADE OF THE WETTING ANGLE ( $\theta$ ) AND THE SURFACE TENSION ( $\sigma$ ) OF  $\text{SiO}_2$  SUB2, BAO, B SUB2 O SUB3 MELTS ON THE SURFACE OF A STEEL CONTG. NI 54.65, CR 25.12, SI 0.49, AND MN 0.32PERCENT PREPARED BY HEATING THE POLISHED STEEL IN DRY H<sub>2</sub>; THIS PROCESS LEFT SOME OXIDE WHICH WAS NOT REMOVED. DETERMINATIONS OF  $\sigma$  WERE MADE BY THE METHOD OF THE MAX. PRESSURE IN A BUBBLE, THE LOWEST VALUE BEING GIVEN BY BOROSILICATES CONTG. HIGH B SUB2 O SUB3 AND  $\text{SiO}_2$  SUB2 BUT INCREASING AS  $\text{SiO}_2$  SUB2 OR B SUB2 O SUB3 WAS REPLACED BY BAO. ALL THE MIXTURES SHOWED GOOD WETTING OF THE STEEL. THE INTERFACIAL TENSION  $\sigma$  SUBSOLID AT THE METAL-MELT INTERFACE DECREASES ON REPLACING B SUB2 O SUB3 OR  $\text{SiO}_2$  SUB2 BY BAO. THE PRESENT RESULTS GIVE ADHESION VALUES 1.5 TIMES HIGHER THAN THOSE USUALLY OBTAINED WITH ENAMELS ON PRIMED MILD STEEL. THE HIGHER BOND STRENGTH IS ONE OF THE CAUSES OF THE IMPROVED QUALITY OF BOROSILICATE MELTS THAT CONTAIN BAO. IT IS CAUSED BY THE LOWER POLARIZATION OF THE BOUNDARY CATIONS BY THE BA PRIME(X3)PLUS CATIONS WHICH REPLACE SI PRIME(X1)PLUS AND B PRIME(X2)PLUS.

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--BUTADIENE NITRILE RUBBERS -U-  
AUTHOR--(05)-FISHER, S.L., RADCHENKO, I.I., PERMINOV, A.M., PODDUBNYI,  
I.YA., RABINERZON, M.A.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 256,250  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--17MAR70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--NITRILE RUBBER, CHEMICAL PATENT, COPOLYMERIZATION, BUTADIENE,  
ACRYLONITRILE, SOAP, FROST, LOW TEMPERATURE EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/1789 STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0132055  
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0132055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE RUBBERS ARE PRODUCED BY AQ. EMULSION COPOLYM. OF BUTADIENE WITH ACRYLONITRILE IN THE PRESENCE OF FREE RADICAL TYPE INITIATORS, EMULSIFIERS COMPRISING SOAPS OF CARBOXYLIC ACIDS, AND S-CONTG. REGULATORS OF THE MOL. WT. AND OF THE MOL. WT. DISTRIBUTION. TO IMPROVE THE FROST RESISTANCE OF THE RUBBERS, THE REGULATORS ARE INTRODUCED IN THE FORM OF AN EMULSION OR SUSPENSION CONSISTING OF PRODUCTS OF ALK. SAPON. OF THE REGULATOR SOLN. IN A FATTY ACID. THE EMULSION OR SUSPENSION IS ADDED IN UNEQUAL PORTIONS DURING THE COPOLYM. PROCESS.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SELECTION OF THE DESIGN AND OPERATING PRACTICE FOR OXYGEN LANCES

-U-

AUTHOR--(05)-GLINKOV, M.A., DEMIN, G.I., PERMINOV, E.M., CHUKHANOV, Z.F.,  
KHMELEVSKAYA, E.D.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30-(2), 119-23

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--OXYGEN, OPEN HEARTH FURNACE, NOZZLE, ABSORPTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1995/0214

STEP NO--UR/0133/70/030/002/0119/0123

CIRC ACCESSION NO--AP0115918

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115918

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF CHEM. AND HEAT ABSORPTION AS A FUNCTION OF THE DEGREE OF LANCE INCLINATION TO OPEN HEARTH BATH WAS DETD. ON MODELS, IN WHICH ABSORPTION OF NH SUB3 IN WATER FROM ITS MIXT. WITH AIR WAS MEASURED AND THAT OF HEAT SUPPLIED BY HOT AIR TO AN OIL BATH WAS EVALUATED. THE ABSORPTION COEFF. FOR A SPECIFIC RANGE OF OPTIMUM GAS CONSUMPTION, WHICH INCREASES WITH A LARGE NOZZLE DIAM., REACHES ITS MAX. VALUE WITH VERTICAL NOZZLES. NO LOWERING OF THE ABSORPTION COEFF. AFTER REACHING ITS OPTIMUM VALUE WAS NOTED FOR NOZZLES INCLINED 30-75DEGREES TO THE VERTICAL. GAS CONSUMPTION AND NOZZLE DIAM. ARE ASSOCD. BY THE ARCHIMEDES CRITERION AR (AR EQUALS W PRIME2 GAMMA G-GD GAMMA L). THE MAX. ABSORPTION IS OBTAINED WITH AR 100, AND ABSORPTION COEFF. N CAN BE GIVEN WITHIN 5PERCENT AS N EQUALS 0.96-(AR PLUS 4.55). FOR A GROUP OF NOZZLES SUFFICIENTLY DISTANT (SIMILAR TO 10 DIAM. MIN.) IT IS ABOUT THE SAME FOR A GROUP OR INDIVIDUAL NOZZ.E THE ANGLE OF NOZZLE INCLINATION TO THE VERTICAL AFFECTS BOTH THE RATE OF ABSORPTION AND THE DEGREE OF STIRRING, THE OPTIMUM FOR THE PURPOSE BEING 55DEGREES FOR CLOSELY PLACED NOZZLES AND 45DEGREES FOR MORE DISTANT ONES. FACILITY: MOSK. INST. STALI SPLAYOV, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 531.01

PERMINOV, I. G.

"The Behavior of Some Gyrosystems During the Action of External Moments and Rotation of the Base"

Sborn. Nauch. Tr. Perm. Politekhn. In-t (Collection of Scientific Works of the Perm' Polytechnic Institute), No 99, 1971, pp 101-116 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2A109 by I. V. Novozhilov)

Translation: The article deals with a uniaxial power gyrostabilizer with a large static coefficient of the stabilization channel. The base rotates with respect to an axis that is permanently oriented in space and to the perpendicular axis of the peripheral ring of the gyroscope. An external disturbing moment is applied to the system along the axis of the peripheral ring. The disturbing moment and the value of the angular velocity are assumed to be constant.

The equilibrium positions of the system in terms of the axis of the internal ring and the peripheral ring are found on the basis of the angles of rotation  $\alpha$  and  $\beta$ . An investigation is made of the stability, by virtue of the precession equations of the system, of the equilibrium positions in terms of the large ring on the basis of  $\alpha$ , and in terms of the small ring on the basis of  $\beta$ .

1/1

- 127 -

USSR

UDC 534

BANAKH, L. YA., PERMINOV, M. D., PETROV, V. D., SINEV, A. V.

"Methods of Calculating the Rigidity, the Inertia and Damping of Matrices for Complex Three-Dimensional Systems"

V sb. Vibroizolyatsiya mashin i vibrozashchita cheloveka-operatora (Vibration Insulation of Machines and Vibration Protection of the Human Operator-- collection of works), Moscow, Nauka, 1973, pp 67-81 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6A154)

Translation: A study was made of the methods of calculating the rigidity, inertia and damping matrices required to construct the solution of natural and forced oscillations of dynamic models of complex three-dimensional mechanical structures. It is proposed that the real structural element is replaced by a spatial system of solid states and lumped masses joined to each other by elastic couplings of the beam element type and joined to the foundation by means of shock absorbers. The formulas were derived which permit definition of the complete rigidity matrix of the system using the rigidity characteristics of individual elastic elements and the coordinate transformation matrices. It is demonstrated that in order to determine the complete damping matrices it is possible to use analogous formulas. Methods of compiling the inertial matrices were analyzed for a spatial system of solid states, and a study was made of the characteristic features of

1/2

USSR

BANAKH, L. YA., et al., Vibroizolyatsiya mashin i vibrozashchita cheloveka-operatora Nauka, 1973, pp 67-81

calculating the matrices in the absence of inertial properties by a number of coordinates. A study was made of the problem of limiting the number of degrees of freedom in general case of the three-dimensional system. Several parameters of this restriction are presented. The bibliography has 7 entries.

2/2

- 115 -



USSR

UDC: 669.162.12:622.782.004.12

KOPYRIN, I. A., PERMINOV, N. I., and BORTS, YU. M.

"Influence of Magnesium on the Properties of Fluxed Iron Ore Pellets"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 28-32

Abstract: A study was made of the effect of substituting dolomite for limestone in pellets manufactured of finely grained SSGOK concentrates with (CaO + MgO):  $SiO_2 = 1.34$ . It was established that the replacement of limestone by dolomite facilitates an increase in the rate of desulfuration and a decrease in the temperature of the beginning of active desulfuration of the pellets. Due to the lower quantity of fluid mobile melt, oxidation of  $Fe_3O_4$  in pellets with dolomite occurs more rapidly and is possible right up to  $1200^\circ C$ . The process of oxidation and desulfuration can be combined in a single zone of high temperatures, whereas pellets with limestone must be oxidized in a zone of moderate temperatures (not over  $1100^\circ C$ ). The presence of free lime (up to 0.5%) and its hydration cause intensive breakage of pellets with limestone in the moist atmosphere. Under the same conditions for dolomite pellets, no free lime is detected and they lose their strength to a lesser extent when stored exposed to the air. With increasing MgO in the pellets, the softening temperature increases from  $1065$  to  $1160^\circ C$ . From the standpoint of improvement of slag properties, it is more expedient to introduce dolomite into the pellets than into the agglomerate. 4 illustrations; 2 tables; 12 biblio. refs.

1/1

USSR

P UDC: 669.162.12:622.782.004.12

OSTROUKHOV, M. Ya., RUSKOVA, A. G., PERMINOV, N. I., RUSAKOV, L. N., VYATKIN, G. P.,  
and ABROSIMOV, A. S.

"Structural Specifics and Metallurgical Properties of Pellets Made of Titanium-Magnetite Ore Concentrates. Report 1"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 33-37

Abstract: Pellets made of ilmenite-titano-magnetite ores from the southern Urals (60.87% Fe; 10.14%  $TiO_2$ ) with basicity ( $CaO: SiO_2$ ) 0.40-1.38, roasted under isothermal conditions in a current of air (60 l/hr) for 30 minutes were studied. The composition and structure of the pellets were determined by the roasting temperature. With low-temperature roasting (1150-1220° C), the processes of sintering and recrystallization occur in parallel with oxidation of the ore grains, and highly porous, but low-strength pellets are produced consisting of hematite, pseudobrookite, calcium ferrites (influxed pellets) and silicate glass. With high-temperature roasting (1250-1300° C), oxidation precedes the recrystallization and sintering processes of the titano magnetite. These pellets have increased strength but low porosity, and consist of hematite (solid solution) and silicate binder; the predominate mass of the titanium oxides is present as a solid solution consisting of hematite. Two illustrations; one table; three biblio. refs.  
1/1

USSR

PERMINOV, O. N.

"Solution of the Problem of Integer Nonlinear Programming by the Method of Dynamic Programming"

Ekon.-mat. Metody i Programmir. Plan.-ekon. Zadach. [Mathematical Economics Methods and Programming of Planning and Economic Problems -- Collection of Works], Moscow, 1972, pp 202-207 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V716 by Yu. Finkel'shetyn).

Translation: The following problem is studied:

$$z = \sum_{j=1}^n f_j(x_j) \rightarrow \max, \quad (1)$$

$$\sum_{j=1}^n a_j x_j \leq b_0, \quad (2)$$

$$x_j \geq 0 \text{ is an integer, } j = 1, \dots, n. \quad (3)$$

Here all  $a_j$  and  $b_0$  are positive integers. This is the knapsack problem with a nonlinear goal function. A number of algorithms are known for its

USSR

PERMINOV, O. N., Ekon.-mat. Metody i Programmir. Plan.-ekon. Zadach., Moscow, 1972, pp 202-207.

solution, using the method of dynamic programming. For convex functions  $f_j(x_j)$ , the volume of calculations can be decreased. The author indicates a path to further reduction of the volume of calculations (with convex  $f_j(x_j)$ ) to  $2[n - 1](R + 2) + 1$ , where  $R = \max \{r_1, r_2, \dots, r_n\}$  and  $r_j$  is the remainder from division of  $b_0$  by  $a_j$  ( $j = 1, \dots, n$ ). The results produced are applicable to the problem of the knapsack with  $m$  limitations (although the effectiveness of the method decreases rapidly with increasing  $m$ , as is usual in dynamic programming).

2/2

- 59 -

USSR

PERMINOV, S. B.

"Problems of Development of an Optimization Model of a Three-Level Branch System"

Optimiz. Planov Razv. i Razmeshch. Otrasley Prom-sti [Optimization of Plans for Development and Placement of Branches of Industry -- Collection of Works], Novosibirsk, 1971, pp 162-168, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V625).

NO ABSTRACT.

1/1

PERMINOV, V. D.

RM / 12-140 / 5-111-1-93  
Dec '72 24

Perminov, V. D., and Ye. Ye. Solodkin.  
Axisymmetric bodies with minimum  
resistance at a specific heat flow to the  
surface. III: Uchenyye zapiski Tsentralfno-  
go aerogidrodinamicheskogo instituta, v. 2,  
no. 6, 1971, 32-40. (RZhMekh, 5/72,  
no. 5B345)

For axisymmetric bodies with a flat leading edge and a mildly sloping lateral surface, an approximate solution is given to a variational problem of the shape of a body of minimal resistance in a hypersonic gas under a specific total heat flow to the surface. A modified Newtonian formula is used for calculation of the pressure distribution. The formulated isoperimetric problem of the shape of an axisymmetric body of given dimensions with a flat leading edge, and minimum resistance at a given total heat flux, is solved numerically by a modified method of local variations at values of  $M_\infty = 6$ , 10, and 30, and  $Re = 10^6$ . It is shown that, under the specified conditions, the requirements of minimal resistance and minimal heat flow to the body surface are contradictory.

Popov, F. D., and I. M. Breyev. Calculation  
of supersonic flow around blunt bodies by the  
finite-difference method. IN: Trudy II  
Respublikanskoy konferentsii po aerogidromekhanike,  
teploobmenu i massoobmenu. Sektsiya "Aerodinamika  
bol'shikh skorostey", Kiyev, Kiyevskiy universitet,  
1971, 50-55. (RZhMekh, 5/72, no. 5B316)

A finite-difference scheme is proposed for the calculation of static, mixed, axisymmetric flow over the nose section of a blunt body in a supersonic ideal gas. The shock layer considered is transformed

USSR

PERMINOV, V. D., SOLODKIN, E. E., Moscow

"Axisymmetric Bodies of Minimum Resistance and Minimum Heat Flow to the Body Surface With Various Boundary Layer Flow Characteristics"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No. 2, March-April, 1971, pp 94-102

Abstract: Approximate formulae are obtained for the determination of friction shear and heat flow distribution along the surface of a body of given shape and pressure distribution.

1/2

USSR

PERMINOV, V.D., et al, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 2, March-April 1971, pp 94-102

With large Reynolds numbers the pressure distribution can be obtained by solving the Euler equations with suitable boundary conditions. Exact solution of these equations is not available. Therefore approximate methods have to be used.

The formulae of friction and heat flow distribution are used to determine the shape of axisymmetric bodies of minimum resistance and minimum heat flow with a hypersonic flow of viscous gas. The method of variations is used for this purpose.

2/2



Magnesium

USSR

UDC 669.721.9

SAMSONOV, G. V., PERMINOV, V. P.

"Magnesium-Thermal Techniques"

Magniyetermiya [English version above], Moscow, 1971, 174 pages.

FOREWORD: Metal-thermic processes and methods are being ever more broadly used in metallurgy and chemistry, particularly in connection with the development of the production of refractory metals and alloys, various metallic compounds and ferroalloys. Together with the most widely developed aluminum-thermal techniques, calcium-thermal, silicon-thermal, boron-thermal and magnesium-thermal methods are becoming more widely used. Magnesium-thermal methods form the subject of this book. Magnesium-thermal techniques have been particularly widely developed in connection with the organization of industrial magnesium-thermal production of titanium, niobium, other light and refractory metals, as well as compounds such as nitrides, boron carbide, certain borides and silicides. The simultaneous expansion of the production capacity for magnesium, its high reducing activity, the absence of compounds of magnesium with many metals or the formation of unstable compounds which

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USSR

UDC 669.721.9

SAMSONOV, G. V., PERMINOV, V. P., Magniyetermiya, Moscow, 1971, 174 pages.

lose magnesium relatively easily at high temperatures, have resulted in particularly rapid expansion of the magnesium-thermal method in inorganic synthesis and in production.

At the same time, magnesium-thermal techniques allow the synthesis of many compounds of magnesium with metals and nonmetals which have important physical-technical and chemical properties, of use in various branches of new technology.

In spite of the broad popularity and continuous development of the magnesium-thermal method, no summarizing works have yet been written; the information available is spread through many sources. Furthermore, the theoretical principles of magnesium-thermal reduction have been insufficiently developed, making familiarization with them and further development difficult.

The authors have attempted to fill this gap to some extent and systematize the available information on the theoretical principles and applications of magnesium-thermal techniques, using the experience which they have accumulated and information on the metal-chemical properties of magnesium, as manifested in its compounds.

In spite of the unavoidable shortcomings of this review, the authors hope that the book will be useful to metallurgists and chemists and will influence further works in the area of metallotherapy.

2/5

USSR

UDC 669.721.9

SAMSONOV, G. V., PERMINOV, V. P., Magniyetermiya, Moscow, 1971, 174 pages.

TABLE OF CONTENTS

Foreword	4
Introduction	5
Chapter I. General Principles of the Theory of Magnesium-Thermal Processes	7
1. Metallochemical Interactions in Binary Magnesium Alloys	7
2. Metallochemical Interactions in Ternary Magnesium Alloys	18
3. Thermodynamics of Processes, Thermal Effect of Magnesium-Thermal Reaction and Heat Balance of Process	23
4. Classification of Magnesium-Thermal Processes	31
Chapter II. Production of Metals of Group I and Their Alloys with Magnesium	32
Chapter III. Production of Metals of Group II and Their Alloys with Magnesium	37
Chapter IV. Production of Transition Metals and Their Alloys with Magnesium	45
Rare earth metals	45
Actinides	50
Metals of Subgroup IVa (titanium, zirconium, hafnium)	62

3/5

USSR

UDC 669.721.9

SAMSONOV, G. V., PERMINOV, V. P., Magniyetermiya, Moscow, 1971, 174 pages.

Metals of Subgroup Va (vanadium, niobium, tantalum)	105
Metals of Subgroup VIa (chromium, molybdenum, tungsten)	112
Metals of Subgroup VIIa (manganese, technetium, rhenium)	125
Metals and alloys of Subgroup VIIa	125
Chapter V. Production of Boron, Metals of Subgroup IIIb and Their Alloys with Magnesium	128
Chapter VI. Production of Metals and Alloys of Magnesium with the Elements of Subgroups IVb-VIIb	141
Elements of Subgroup IVb	141
Elements of Subgroup Vb	142
Elements of Subgroup VIb and VIIb	144
Chapter VII. Production of Binary Magnesium-Free Compounds and Alloys	144

3/4

USSR

UDC 669.721.9

SAMSONOV, G. V., PERMINOV, V. P., Magniyetermiya, Moscow, 1971, 174 pages.

4/5

USSR

UDC 669.721.9

SAMSONOV, G. V., PERMINOV, V. P., Magniyetermiya, Moscow, 1971, 174 pages.

Chapter VIII. Safety Techniques and Industrial Sanitation Procedures for Magnesium-Thermal Processes	153
1. Toxicological Evaluation of Materials and Preventive Measures	153
2. Pyrophoric Properties of Materials and Fire Safety Techniques	158
3. Safety Procedures in the Magnesium-Thermal Production of Titanium	163
Bibliography	166

Acc. Nr.: AMC106713

Ref. Code: UR0000

Chizhikov, A. I.; Perminov, V. P.; Lokhimovich, V. L.; Girskiy, V. Ye.; Morozenskiy, L. I.; Grigor'yev, E. F.

Continuous Casting of Steel Into Billets of a Large Cross-Section (Nepreryvnaya razlivka stali v zagotovki krupnogo secheniya) Moscow, Metallurgiya, 1970, 135 pp (SL:2047)

TABLE OF CONTENTS:

Preface	5
Casting Machines Used in Development of Production Techniques of Castings and Their Adoption	6
Continuous Casting of Steel Into Large Sheet Bars	8
Thermal Conditions in Formation of Large Sheet Bars	10
Properties of Steel at High Temperatures	33
Stresses in a Shaping Ingot and Methods for Their Reduction	40
Adoption of Continuous Steel Casting Into 175X1020 mm Sheet Bars	57
Adoption of Continuous Steel Casting Into 200X1500 mm Sheet Bars	63
Characteristics of Continuous Casting of Wide Slabs With a Side Ratio of	

Reel/Frame

**19890037**

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Acc. Nr.: AM 0106713

1 : 10 (150X1500 mm)

Crystallizers for Continuous Casting of Wide Slabs	76
Production of Shaped Castings of a Large Cross-Section	84
Thermal Parameters Characteristic of the Formation of Square Continuous <del>XXXX</del> Ingots	91
Investigation of Technological Factors Determining the Quality of Shaped Billets With a Cross Section of 280 X 280 mm	92
Quality of Merchant Shapes Produced From Castings of a Square Cross-Section	102
Improvement of Continuous Steel-Casting Techniques	112
Bibliography	117
	134

Given are results of investigations of conditions in formation of large continuous ingots.

Given are results of the development and adoption of techniques for continuous steel casting into slabs with a width up to 1500 mm and shaped castings with a cross-section up to 280 X 420 mm.

Reel/Frame  
**19890038**

Acc. Nr: **AP0049246**

Abstracting Service;  
CHEMICAL ABST. 5-70

Ref. Code:

**41R0080**

103165y Magnesiothermic preparation process and some properties of cobalt-magnesium and nickel-magnesium alloys. Perminov, V. P. (USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 62-5 (Russ). The magnesiothermic process is useful in the rapid prepn. of Co-Mg or Ni-Mg alloys rich in Co and Ni, resp. The sesquioxides  $\text{Co}_2\text{O}_3$  and  $\text{Ni}_2\text{O}_3$  are used as the starting materials. The reactions were carried out in a sealed stainless steel reactor in a protective Ar atm. A corundum crucible was placed into the reactor and was isolated from the walls by Mo screens and MgO filling. The reaction was initiated by an arc between 2 C electrodes. Besides the  $\text{Co}_2\text{O}_3(\text{Ni}_2\text{O}_3)$  and Mg, CaO was added as a flux and  $\text{KClO}_3$  to enhance the heat effect. Excess Mg was introduced with respect to that needed for redn., for the alloying of the formed Ni(Co). A typical charge consisted of  $\text{Co}_2\text{O}_3$  16.6, Mg 20.4, CaO 16.8,  $\text{KClO}_3$  15 g. The reaction proceeded violently with an increase of pressure to 7-8 kg/cm<sup>2</sup>. The alloy was formed as a compact dense button. The d. of the Co-Mg, (76.13% Co) alloy was 95.66 and that of the Ni-Mg (58.71% Ni) alloy 7.406 g/cm<sup>3</sup>. Etched sections revealed Ni(Co) crystals along with the eutectic and  $\text{MgNi}_2(\text{MgCo}_2)$  phases. The microhardness of the  $\text{MgCo}_2$  and  $\text{MgNi}_2$  phases is 760 and 340 kg/mm<sup>2</sup>, resp. Aq. solns. of KOH and  $\text{H}_2\text{SO}_4$ , and concd. HCl do not attack the Co-Mg alloy but dissolve the Ni-Mg alloy.  $\text{HNO}_3$  reacts with both alloys.

M. Shelef

REEL/FRA  
**19801053**



1P9053073

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,  
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,  
PP 72-77

V. P. Perminov, V. A. Neronov

MAGNESIOTHERMIC PRODUCTION OF MOLYBDENUM FROM MOLYBDIC  
ANHYDRIDE WITHOUT USE OF FURNACE

Molybdenum (99.2—99.4% purity) has been obtained from molybdic anhydride by  
magnesiothermics without using a furnace. The effect of calcium oxide, magnesium and  
potassium chlorate contents in charge as well as the influence of briquettes density and  
that of gaseous fluid pressure on the yield of molybdenum has been investigated. The  
optimum have been found conditions for the production of molybdenum in a maximum  
yield of 68%.

1999 1829

18

USSR

UDC 66.099.2:661.635.213

ARMYSHOV, V. F., BURYAK, K. A., ZAYKOVSKIY, A. V., (DECEASED), RAYEV, A. YA.,  
SAVCHENKO, V. A., and PERMINOVA, L. YA.

"Granulation of Ammophos by the Pressing Method"

Moscow, Khimicheskaya Promyshlennost', Vol 48, No 6, Jun 72, pp 434-436

Abstract: A method for the granulation of multipurpose fertilizers by the pressing method was developed at the Scientific Research Institute of Fertilizers and Insectofungicides imeni Ya. V. Samoylov. This method is being applied for the production of granulated ammophos/ammonium phosphate fertilizer/ at the Dzhambulsk Superphosphate Plant. Ammophos pulp with a 50% water content is subjected to spray drying. The dry powder is classified and then compressed to form plates. In the pressing stage 6.56 t/hr of powder (fresh + recycled material) yielded 4.08 t/hr plates and 2.48 t/hr of fine material that had the same granulometric composition as the initial ammophos and was fully recycled. Crushing of the plates resulted in a commercial granulated product with a grain size of 1-3 mm (2.27 t/hr from 4.08 t/hr plates), fine powder with a grain size  $< 1$  mm, that was recycled, and an oversize grain fraction that was reground. One of the principal problems in connection with the process is formation of a large amount of fine material that has to be recycled. Formation of fine material in the amount of 37.6%

USSR

ARMYSHOV, V. F., et al., Khimicheskaya Promyshlennost', Vol 48, No 6,  
Jun 72, pp 434-436

in the pressing stage is due principally to the porous structure of the powder being compressed, which contains only 30% of solids, and its high air content. The air contained in the powder interferes with feeding of the powder into the space between the rollers, producing spraying of the powder. It also reduces the adhesion between powder particles. To obtain a lower ratio of fine material that has to be recycled, methods must be developed for reducing the amount of air in the powder.

2/2

USSR

UDC 535.853.23:533.9.07

RACHURINA, L. G., DEVYATKIN, I. I., PERMINOVA, V. M., TSEMKO, N. I., CHUPRINA, L. K.

"Microwave Plasma Solution Analyzer"

Dokl. Vses. soveshch. Optich. i titrometrich. analizatory zhikh. sred. 1971, Ch. 2 (Reports of the All-Union Conference on Optical and Titrometric Analyzers of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 130-134 (from RZh--Metrologiya i Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.32.1052)

Translation: A report is presented on a developed microwave plasma solution analyzer comprising a feed module, a microwave unit including a plasmotron and magnetron oscillator which is attached to the track of the DFS-S or ISP-30 spectrograph. The microwave discharge is excited in a quartz tube through which argon, helium, nitrogen or air is blown with a flow rate of 8-30 liters/minute. The analyzed solution is introduced into the discharge tube in the form of an aerosol. The analyzer control panel is placed on the face panel of the feed unit. The photometric analysis was run with respect to the strongest spectral lines. The sensitivity of analyzing calcium and copper was determined as  $1 \cdot 10^{-4}$  mg/ml, magnesium, strontium, zinc, cadmium, barium, iron and nickel,  $1 \cdot 10^{-3}$  mg/ml, and phosphorus and silicon,  $1 \cdot 10^{-2}$  mg/ml. There is 1 illustration, 1 table and a 4-entry bibliography.

1/1

USSR

UDC: None

GROSS, Ye. F. (Deceased), PERMOGOROV, S. A., TRAVNIKOV, V. V., and  
SEL'KIN, A. V.

"Kinetics of the Formation of Bonded Excitons in CdS Crystals"

Leningrad, Fizika Tverdogo Tela, vol 14, No 5, 1972, pp 1547-1548

Abstract: This brief communication is the sequel to an earlier article published by the authors named above in the same journal (vol 14, 1972, p 1388), in which they showed that the excitation of CdS crystals with a high probability of nonradiation recombination by monochromatic light creates monokinetic exciton distribution in the exciton zone. In the present communication an account is given of an investigation into the probability of formation of excitons bonded with neutral donors in CdS crystals as a function of the energy of the free excitons. The excitation spectra were obtained at a temperature of 4.2° K with equipment described in the earlier paper, and the results of their plot are shown.

1/1

- 40 -

USSR

GROSS, Ye. F.; PERMOGOROV, S. A.; et al (Joffe Physics-Engineering Institute, USSR Academy of Sciences, Leningrad)

"Spectroscopic Display of Free Exciton Lifetime"

Leningrad, Fizika Tverdogo Tela; May, 1972; pp 1388-95

ABSTRACT: The authors conducted a study of the spectra of exciton luminescence in CdS crystals with monochromatic excitation at temperatures of 4.2-77°K. It was discovered that in some samples the shape of the spectrum of exciton luminescence depends strongly on the frequency of the exciting light and contains lines shifted toward the long-wave side of the excitation lines by an amount equal to the energy of an integral number of longitudinal optical phonons. It was shown that such a characteristic of the luminescence spectra is caused by the nondetermination of the equilibrium distribution of excitons according to energy. The cause of the nondetermination of the equilibrium distribution in the exciton zone is the short lifetime of the free excitons as a result of the high probability of radiationless transitions. The non-equilibrium character of exciton luminescence is reflected also in the shape

1/2

USSR

GROSS, Ye. F. PERMOGOROV, S. A., Fizika Tverdogo Tela, May 1972, pp 1388-95

of the excitation spectra of exciton luminescence. In crystals with short lifetimes of the free excitons the luminescence excitation spectra have a series of narrow maxima, the distance between which is equal to the energy of a longitudinal optical phonon. The position of the series of maxima in the excitation spectrum is determined by the energies of the exciton states, the annihilation of which is observed in the luminescence spectrum.

2/2

93

1/2 009  
UNCLASSIFIED  
PROCESSING DATE--23OCT70  
TITLE--STRUCTURE OF DNA AND HISTONES IN THE NUCLEOHISTONE -U-  
AUTHOR--(04)-PERMOCOROV, V.I., DEBABOV, V.G., SLADKOVA, I.A., REBENTISH,  
B.A.  
COUNTRY OF INFO--USSR  
SOURCE--BIOCHIM. BIOPHYS. ACTA 1970, 199(2), 556-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DNA, MOLECULAR STRUCTURE, BUFFER SOLUTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0313  
CIRC ACCESSION NO--AP0119300  
STEP NO--NE/0000/70/199/002/0556/0558  
UNCLASSIFIED



2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119300  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CD AND UV MEASUREMENTS OF NATIVE SOL. NUCLEOHISTONE FROM CALF THYMUS AND ITS COMPONENTS AT SEVERAL SALT CONCS. ARE REPORTED. CD CURVES WERE OBTAINED FOR NUCLEOHISTONE, NATIVE DNA, DENATURED DNA, AND HISTONES IN DIL. PHOSPHATE BUFFER (0.7 M, PH 6.8). CD CURVES WERE ALSO OBTAINED AT INCREASING SALT CONCS., UP TO 2M NaCl (IN ADDN. TO PHOSPHATE BUFFER). CHANGES IN CD OF NATIVE DNA BROUGHT ABOUT BY HIGH SALT CONC. WERE EXHIBITED IN A DECREASE OF THE PEAK NEAR 275 NM; IN 2M NaCl THERE WAS A SIMILAR DECREASE IN THE PEAK OF THE NUCLEOHISTONE IN DIL. BUFFER. THE CD SPECTRUM OF DENATURED DNA OVER THE RANGE 260-300 NM WAS RELATIVELY UNAFFECTED BY SALT CONCN. THESE AND OTHER DATA SUGGESTED THAT IN SOL. NUCLEOHISTONE DNA HAS A DOUBLE HELIX CONFORMATION CLOSELY RELATED TO THE CONFORMATION OF DNA IN SOLN. OF HIGH SALT CONCN., AND THE HISTONES ASSUME THE PARTIAL ALPHA HELIX CONFORMATION.  
FACILITY: INST. GENET. SELECT. MICROORG., MOSCOW, USSR.

UNCLASSIFIED

1/2 025  
TITLE--THE INVESTIGATION OF DNP STRUCTURE AND ITS COMPONENTS BY OPTICAL  
METHODS -U- UNCLASSIFIED PROCESSING DATE--23OCT70  
AUTHOR-(04)-PERMOGOROV, V.I., SLADKOVA, I.A., DEBAROV, V.G., REBENTISH,  
B.A.  
COUNTRY OF INFO--USSR  
SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 359-366  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DNA, PROTEIN, MOLECULAR STRUCTURE, BIOLOGIC STAIN,  
SPECTROPHOTOMETRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1998/0152 STEP NO--UR/0463/70/004/003/0359/0366  
CIRC ACCESSION NO--AP0120852  
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0120852  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. THE INVESTIGATION OF CIRCULAR DICHROISM OF DNP, DNA AND HISTONES HAS BEEN CARRIED OUT. THE COMPARISON OF CURVES OF DNP CURCULAR DICHROISM WITH THOSE OF DNA IN SOLUTION AT VARIOUS NAOL CONCENTRATIONS SHOWED THAT DNA IN DNP WAS NATIVE AND THAT ITS STATE IN DNP WAS SIMILAR TO THE STATE OF DNA IN 2 M NAOL. IT WAS SHOWN THAT THE HELICAL CONTENT OF HISTONES IN DNP WAS EQUAL TO 44PERCENT. THE RESULTS OF INVESTIGATION OF ORD COMPLEXES OF ACRIDINE ORANGE WITH DNA AND DNP MAKE IT POSSIBLE TO CONCLUDE THAT DNA IN DNP IS NATIVE AND THAT A PART OF DNA IS FREE OF HISTONES. THE SPECTROPHOTOMETRIC TITRATION AND THE INDUCED OPTICAL ROTATORY DISPERSION MEASUREMENTS AT LOW RATIOS OF DYE: BINDING SITES INDICATED THAT APPROXIMATELY 20 PER CENT OF DNA IN DNP WAS FREE OF HISTONES.  
FACILITY: INSTITUTE OF GENETICS OF MICROORGANISMA, MOSCOW.

UNCLASSIFIED

USSR

Aerosols

USSR

UDC 536.242

PERMYAKOV, B. A., Candidate of Technical Sciences

"Study of Local Values of Coefficients of Heat Transfer From the Heated Wall of a Vertical Pipe to Dust-Air Flow"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 10, Oct 72, pp 16-17

Abstract: The article describes results of a study of the effect of the solid phase concentration and Re number on the value of local heat transfer coefficients for the input section of a vertical pipe with an unstabilized heat exchange process. ASH coal dust with an average particle size of 0.05-0.21 mm was used as the solid phase. The solid phase concentration was varied from 2 to 6 kg of dust/kg of air, and the flow rate of the carrier phase from 8 to 20 m/sec. The motion of the dust-air mixture was downwards.  $Re = 4000 - 9000$ . A calculating formula is suggested, making it possible to consider the effect of input flow disturbances on heat exchange and determine the value of the thermal stabilization section. The length of the input thermal stabilization section is practically independent of the dust concentration and Re number. There is a decline in local heat

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USSR

PERMYAKOV, B. A., Khimicheskoye i Neftyanoye Mashinostroyeniye, No 10,  
Oct 72, pp 16-17

transfer coefficients with an increase in Re number, and an increase with  
a rise in concentration.

2/2

- 1 -

USSR

UDC 616.282.3-008.1-073.97

PERMYAKOV, B. V., Chair of Design and Production of Radio Equipment,  
Chelyabinsk Polytechnical Institute and Chair of Ear, Nose and Throat Diseases,  
Chelyabinsk Medical Institute

"Statistical Study of the Informative Value of Electronystagmograms of the  
Vestibular Analyser"

Moscow, Vestnik Otorinolaringologii, No 6, 1972, pp 52-55

Abstract: Statistical analysis of 55 electronystagmograms (ENG) taken of healthy persons and of 55 ENGs taken of 55 persons who suffered from closed cranial traumas with associated vestibular dysfunction showed that there were no significant differences between the two groups and that amplitudes and frequency of nystagmus averaged in time were individual characteristics of the subjects and equally probable under normal and pathological conditions. However, the dynamics of nystagmus (change in frequency and amplitude in time) induced under identical conditions did differ significantly between the two groups. Hence it can serve as an aid in diagnosis. An abnormal slowing of the response of the primary receptor to stimulation of the vestibular apparatus is an indication of vestibular pathology.

1/1

- 61 -

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CLINICO MORPHOLOGICAL PARALLELS IN HAND AND MECHANICAL SUTURES OF  
THE PERIPHERAL NERVES -U-  
AUTHOR-(03)-PERMYAKOV, N.K., BOYEV, YU.M., SUSLOV, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 3, PP  
40-44  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--NERVOUS SYSTEM, SURGERY, SUTURE, NATURAL FIBER, TANTALUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0916 STEP NO--UR/0481/70/000/003/0040/0044  
CIRC ACCESSION NO--AP0126575  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126575

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPARISON OF TWO METHODS OF NERVE SUTURE, THE MECHANICAL TANTALUM AND THE HAND SILK SUTURES, UNDERTAKEN ON 24 DOGS HAS SHOWN THAT AFTER THE MECHANICAL SUTURE IN 3-6 MONTHS THERE IS RESTORATION OF STRUCTURE BOTH OF THE CENTRAL AND OF THE PERIPHERAL ENDS OF THE NERVE AT THE EXPENSE OF THE INGROWTH OF NEURGFIBRIL FROM THE CENTRAL INTO THE PERIPHERAL ENDS OF THE NERVE. AFTER HAND SUTURE NO SUCH RESTORATION OF THE NERVE STRUCTURE IS SEEN AND ONLY THIN, SINGLE NEURGFIBRILS REACH THE PERIPHERAL END OF THE NERVE, THROUGH THE SUTURE AREA. CLINICAL DATA SHOW THAT COMPLETE RESTORATION OF NERVES AFTER THE TANTALUM MECHANICAL SUTURE IS SEEN TWICE AS RAPIDLY AS AFTER THE HAND SILK SUTURE. FACILITY: KHIRURGICHESKAYA KLINIKA NR 4 I PATOLOGGANATOMICHSKOYE OTDELENIYE NAUCHNO-ISSLED. INSTITUTA SKOROY POMOSHCHI IM. N. V. SKLIFOSOVSKOGO, MOSKVA.

UNCLASSIFIED



USSR

UDC 621.396.677.31

ANYUTIN, A. P., PERMYAKOV, V. A., POLISHCHUK, V. K.

"Radiation Characteristics of Aperture Antennas in a Planar Stratified Medium"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp. 100, pp 27-31 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7B37)

Translation: Formulas are derived for calculating the radiation pattern of a circular wave guide located in an infinite metal plane under a dielectric layer and a layer of plasma. Results are presented from the calculations for the cases of absence of a plasma and in the presence of a plasma with  $\epsilon$  varying linearly or quadratically. It is demonstrated that the presence of the plasma layer leads to a sharp decrease in radiation level in the fields of  $\theta$  observation angles. The radiation pattern must depend on the laws of variation of the  $\epsilon$ -plasma.

1/1

USSR

UDC 669.295:621.785.539

~~PERMYAKOV, V. G.~~, TRUSH, I. KH., LOSKUTOV, V. F., PISARENKO, V. N., and  
YAKOVCHUK, YU. YE., Kiev Polytechnic Institute

"Effect of Titanium on Growth Kinetics of Boronized Layer"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, 1973, pp  
71-72

Abstract: A study was made of the effect of titanium on the growth kinetics and properties of the boronized layer during the saturation of iron-titanium alloys in commercial boron carbide, as well as the effect on grain growth in the transition zone. Synthetic alloys smelted from Armco iron and pure titanium (0.59, 1.12 and 1.64 wt.% Ti) were used for the study. All the alloys had grain No. 6 before boronization. Prismatic specimens 15 x 10 x 10 mm in size were boronized at 900, 950, 1000, 1050 and 1100° C for 3 and 5 hours. Kinetic curves were constructed for all the studied alloys plotting the depth of the boronized layer as a function of the saturation time and temperature. It was found that increasing the titanium content of the studied alloys results in a significant decrease in the maximum depth of the boronized layer.

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- 66 -

USSR

PERMYAKOV, V. G., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, 1973, pp 71-72

Titanium dissolves in FeB, which is accompanied by an increase in hardness. Considering the inhibiting effect of titanium on grain growth in the transition zone and matrix and the peculiarities of its effect on the growth of the boride layer, it is advisable to add 0.5-0.6% Ti to steels that are to be boronized.

2/2

USSR

UDC 621.785.532:669.1'295

BELOTSKIY, A. V., DUKHOTA, P. V., and PERMYAKOV, V. G., Kiev  
Polytechnic Institute

"Phase and Structural Changes in Nitriding of Iron Alloyed With  
Titanium"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8,  
1971, pp 40-42

Abstract: The authors studied iron-titanium alloys containing 0.35, 0.95, 1.32, 1.96, 2.39, and 2.83 wt. percent Ti. The alloys were smelted in an induction furnace in an argon atmosphere. Following homogenizing annealing, the alloys underwent forging, then drawing or cold rolling. Before nitriding, the specimens were annealed at 950° C for five hours to obtain a coarse-grained structure facilitating microstructural observations of diffusion layer variations. The alloys were nitrided at temperatures up to 500° C directly in an X-ray chamber, or at 500, 550, and 600° C

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USSR

BELOTSKIY, A. V., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 40-42

in a laboratory furnace in a dissociated ammonia environment with a 10-40 percent dissociation degree and a holding time of up to six hours. Changes in the phase composition and structure of the diffusion layers were monitored by the methods of high-temperature roentgenography, microstructural analysis, and microhardness.

The results indicate that the surface hardening of iron-titanium alloys by nitriding should be done at a titanium concentration not exceeding 1.3-1.5 percent. Obtained in the process are diffusion layers with high microhardness and good cohesion with the base. In alloys with a higher titanium content the amount of nitrogen that dissolves during nitriding is such that nitrogen phase formation is accompanied by a sharp increase in volume, which embrittles the layer and causes cracking.

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- 54 -

P  
USSR

UDC 669.14.013.27:66-155.3

BELOTSKIY, A. V., LOSKUTOV, V. F., and PERMYAKOV, V. G., Kiev Polytechnical Institute

"Properties of 60S2 Steel After Nitriding"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 70, pp 58-60

Abstract: A study was made of the effect of nitriding on the surface hardness, fatigue strength, and corrosion resistance of 60S2 spring steel. Improved steel of the following chemical composition was used: 0.59% C; 1.0% Si; 0.71% Mn; 0.02% Cr; 0.02% S; and 0.022% P. Specimens 50 x 5 x 0.5 mm were heated in an x-ray chamber in an atmosphere of dissociated ammonia. Nitriding at 500-600° C considerably increased the surface hardness of the steel. Combined nitriding at 650-750° C with subsequent hardening led to the formation of a dense layer of nitrous-carbonic martensite with a high degree of hardness. The nitriding of springs made of 60S2 steel raised the fatigue strength as well as corrosion resistance in water and aqueous salt and soda solutions.

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1/2 034 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--CORROSION RESISTANCE OF STAINLESS STEELS AFTER HIGH TEMPERATURE  
NITRIDING -U-  
AUTHOR--(02)--BILCHENKO, A.V., PERMAYAKOV, V.G.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 6(1), 6-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--STAINLESS STEEL, NITRIDATION, ALLOY DESIGNATION, METAL HEAT  
TREATMENT, CHROMIUM STEEL, CORROSION RESISTANCE, HIGH TEMPERATURE  
EFFECT/(U)1KH13 CHROMIUM STEEL, (U)4KH13 CHROMIUM STEEL, (U)1KH18N9T  
STAINLESS STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/F-RAME--3001/0384 STEP NO--UR/0369/70/006/001/0006/0009  
CIRC ACCESSION NO--AP0126139

UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126139

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS OF STAINLESS STEELS 1KH13, 4KH13, AND 1KH18N9T WERE NITRIDED AT 550-1050 DEGREES IN A STREAM OF NH SUB3. FOLLOWING NITRIDING THE SPECIMENS WERE ANNEALED IN WATER UNDER CONDITIONS SUCH THAT THE HERMETICITY OF THE SET UP WAS NOT BROKEN. THE SPECIMENS WERE THEN TESTED FOR THEIR CORROSION RESISTANCE IN TAP WATER, 30PERCENT KOH, AND IN CONCD. HCL AND HNO SUB3. THE PHASE COMPN. OF THE NITRIDED LAYERS WAS HETEROGENEOUS; HOWEVER, HIGHER NITRIDING TEMP. EFFECTED GREATER HOMOGENEITY AND CONSEQUENTLY GREATER CORROSION RESISTANCE. THE CORROSION RESISTANCE OF THE NITRIDED LAYERS INCREASED WITH DEPTH. THE MOST CORROSION RESISTANT WAS 1KH19N9T, THUS, NITRIDING OF STAINLESS STEEL AT HIGH TEMP. BY THE DESCRIBED METHOD RESULTS IN GREATER CORROSION RESISTANCE THAN NITRIDING COMMONLY USED AT PRESENT.

FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED



1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--REDISTRIBUTION OF SILICON AND ALUMINUM DURING THE AUSTENITIZING OF  
NODULAR CAST IRON -U-  
AUTHOR-(02)-DUNAYEVA, S.A., PERMYAKOV, V.G.  
COUNTRY OF INFO--USSR  
SOURCE--LITEINDE PROIZVOD. 1970, (1), 29-30  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--NODULAR IRON, SILICON CONTAINING ALLOY, ALUMINUM CONTAINING  
ALLOY, IMPACT STRENGTH, GRAPHITIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PRUXY REEL/FRAME--1995/1386 STEP NO--UR/0128/70/000/001/0029/0030  
CIRC ACCESSION NO--AP0116835

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NU--AP0116835

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS MADE TO ELIMINATE THE CHEM. NONUNIFORMITY IN THE TITLE CAST IRON BY CONCG. SI AND AL IN ISOLATED MICROVOLS. OF THE SO CALLED RELIEF FERRITE. CYLINDRICAL SPECIMENS (DIAM. 5 MM) FROM CAST IRON (C 2.7, SI 1.6, AL 2.2, MN 0.6, P 0.04, S 0.01, MG 0.06 ST.PERCENT) AFTER GRAPHITIZATION FOR FERRITE GRAPHITIC STRUCTURE WERE AUSTENITIZED 10-60 MIN AT 830-40DEGREES, COOLED IN AIR TO OBTAIN A FERRITE PEAKLITE BASE, THEN HELD IN A FURNACE AT 740DEGREES FOR 3 HR TO OBTAIN A FERRITE BASE. THE AUSTENITIZATION WAS STARTED AT GRAIN BOUNDARIES THEN PROCEEDED TOWARD THE INSIDE OF GRAINS, AND SI AL DIFFUSED IN THE SAME DIRECTION. THIS RESULTED IN LOWERED HARDNESS, AND INCREASED PLASTICITY AND IMPACT STRENGTH OF THE CAST IRON, AND IS RECOMMENDED FOR THIS PURPOSE.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--EFFECT OF ALUMINUM ON NITRIDING PROCESSES AND PHASE TRANSFORMATION  
IN THE NITRIDED LAYER DURING HEAT TREATMENT -U-  
AUTHOR-(02)-PERMYAKOV, V.G., BELYAYEVA, V.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 118-22

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--IRON ALLOY, ALUMINUM ALLOY, SILICON ALLOY, MANGANESE ALLOY, X  
RAY ANALYSIS, METAL HEAT TREATMENT, METAL PHASE TRANSFORMATION,  
NITRIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1994/1788

STEP NO--UR/0148/70/013/002/0118/0122

CIRC ACCESSION NO--AT0115617

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0115617

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IRON ALLOYS CONTG. C 0.035, 0.027, 0.025, 0.027; AL, 0.45, 0.77, 1.20; SI 0.42, 0.40, 0.40, 0.37; MN 0.11, 0.10, 0.10, AND 0.08 WT. PERCENT WERE STUDIED. SPECIMENS WERE NITRIDED IN A VERTICAL TUBE FURNACE AT 550, 700, AND 750DEGREES FOR 2 AND 8 HR AFTER WHICH THEY WERE IMMEDIATELY QUENCHED IN OIL. SOME OF THE SPECIMENS WERE NITRIDED 25 HR AT 550DEGREES AND COOLED TOGETHER WITH THE FURNACE. THE PHASE COMPN. WAS DETD. LAYER BY LAYER BY MEANS OF X RAYS. THE SPECIMENS WERE THEN QUENCHED IN OIL FROM 700DEGREES AND SUBJECTED TO 1 HR TEMPERING AT 150, 250, 350, AND 550DEGREES. THE DECOMP. OF NITRIDED AUSTENITE AND MARTENSITE WAS FOLLOWED BY DIFFERENTIAL MAGNETIC AND X RAY METHODS. AT LOW TEMP. NITRIDING, THE INCREASE OF AL CONTENT TO 0.77PERCENT INCREASED THE THICKNESS OF GAMMA PRIME PHASE AND CONTRIBUTED TO THE INCREASED HARDNESS OF THIS PHASE AND OF THE NITRIDED AUSTENITE. AT HIGH TEMP. NITRIDING WITH SUBSEQUENT HEAT TREATMENT (QUENCHING FROM 700DEGREES AND TEMPERING AT 350DEGREES) ALLOYS CONTG. HIGHER AL CONC. HAD SHORTER PERIODS AND OBTAINED A HIGHER HARDNESS OF THE NITRIDED LAYER. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 669.14.018.821:621.785.53

BIL'CHENKO, A. V., and FERMYAKOV, V. G., Kiev Polytechnic Institute

"Corrosion Resistance of Stainless Steels after High-Temperature Nitriding"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 1, Jan-Feb 70, pp 6-9

Abstract: Nitriding, while imparting high surface hardness to the steel, considerably reduces its corrosion resistance. This study concerns the effect of the nitriding temperature and subsequent heat treatment on the phase composition and corrosion resistance of 1Kh13, 4Kh13, and 1Kh18N9T stainless steels. The lower corrosion resistance of the steels is due to the impoverishment of the solid solution in chromium. The latter separates in the form of chromium nitride CrN and, apparently, metastable trigonal chromium carbide  $(Cr, Fe)_7C_3$ . The experimental results indicate that the corrosion resistance of stainless steels after high-temperature nitriding (using contact electric heating) and subsequent hardening including tempering is substantially higher after nitriding under conventional conditions commonly used in the industry. Nitriding at high temperatures using contact electric heating greatly intensifies the saturation of steel with nitrogen and cuts considerably the duration of nitriding (from many hours to minutes).

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- 16 -

ALUMINUM AND ITS ALLOYS

ALUMINUM + ITS ALLOYS

USSR

UDC: 669.15:621.785.53

PERMYAKOV, V. G., and BELYAYEVA, V. P.

"Influence of Aluminum on the Process of Nitriding and Phase Conversions in the Layer during Heat Treatment"

Izv. VUZ, Chernaya Metallurgiya, No 2, 1970, pp 118-122

Abstract: This work presents a study of the process of nitriding of steels alloyed with aluminum, i.e., the element that has the strongest influence on this process and on conversions in the nitrided layer during subsequent heat treatment. The chemical compositions of the alloys, produced on the basis of armco iron, were as follows:

Alloy	C	Al	Si	Mn
A	0.035	---	0.42	0.11
Yu4	0.027	0.45	0.40	0.10
Yu8	0.025	0.77	0.40	0.10
Yu12	0.027	1.20	0.37	0.08

USSR

PERMYAKOV, V. G. and BELYAYEVA, V. P., Izv. VUZ, Chernaya Metallurgiya, No 2, 1970, pp 118-122

Specimens in the form of cylinders 3 and 0.8 mm in diameter were nitrided in a vertical tubular furnace at 550-750°C for 2 and 8 hours, then immediately quenched in oil. For comparison, a portion of each melt was nitrided for 25 hours at 550°C with subsequent cooling together with the furnace. The study of the influence of aluminum on the structure, phase composition and properties of the layer showed the possibility of essentially accelerating the process of nitriding by increasing the temperature and subsequent heat treatment, providing high hardness of the diffusion layer of iron alloyed with aluminum. With low-temperature nitriding, an increase in aluminum content to 0.77% increases the thickness of the  $\gamma'$  phase and results in an increase in the hardness of this phase and the nitrided ferrite. Four illustrations; six biblio. refs.

2/2

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--HYDRAULIC RESISTANCE OF ANNULAR AND DISPERSANNULAR SYSTEMS OF TWO  
PHASE MIXTURE FLOW -U-  
AUTHOR-(02)-PERMYAKOV, V.V., PODSUSHNYY, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--INZH. FIZ. ZH. 1970, 18(3), 409-13  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
  
TOPIC TAGS--HYDRAULIC RESISTANCE, TWO PHASE FLOW, PRESSURE GRADIENT, METAL  
TUBE, CALCULATION, WATER, SURFACE TENSION  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/0376 STEP NO--UR/0170/70/018/003/0409/0413  
  
CIRC ACCESSION NO--AP0111569  
UNCLASSIFIED



2/2 029

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE CARRIED OUT IN A HORIZONTAL TUBE 19 MM IN DIAM. THE STATIC PRESSURES WERE SAMPLED AT 30, 445, 1017, AND 1609 MM FROM THE FEED POINT OF THE LIQ. THE PRESSURE DROP WAS MEASURED WITH DIFFERENTIAL MANOMETERS FILLED WITH WATER. ANNULAR 2 PHASE FLOW WAS FORMED BY LIQ. INJECTION THROUGH AN ANNULAR SLIT IN THE TUBE WALL INTO A TURBULENT AIR FLOW. AN EQUATION IS DERIVED FOR WATER THAT CANNOT BE APPLIED TO KEROSENE OR TRANSFORMER OIL. THE RESISTANCE DEPENDS ON THE SURFACE TENSION. THE EQUATION FOR THE HYDRAULIC RESISTANCE OF ANNULAR AND DISPERSE ANNULAR FLOWS DESCRIBES THE EXPTL. DATA WITH AN ERROR OF PLUS OR MINUS 20PERCENT. FACILITY: DAL'NEVOST. POLITEKH. INST. IM. KUIBYSHEVA, VLADIVOSTOK, USSR.

UNCLASSIFIED

USSR

BABENKO, Z. I., VOYTENKO, A. N., LINNIK, L. I., PERMYAKOVA, N. M.,  
SERGEYEV, YE. V., Ukrainian Scientific Research Institute of Plant  
Protection, Kiev, Ukrainian Academy of Agricultural Sciences

"Study of the Acaricidal Properties of 1,1-Diphenyl-2,2,2-trichloro-  
ethanol"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 6, Jun 70, pp  
42-43

Abstract: The compound 1,1-diphenyl-2,2,2-trichloroethanol (I) is  
an analogue of a known acaricide, kel'tan, a long lasting contact  
agent. The effect of (I) on the mites Tetranychus urticae and  
Tetranychus viennensis Zacher was studied under laboratory and  
field conditions, respectively. In laboratory experiments (I) was  
slightly less effective than kel'tan. The opposite held true for  
the field tests: 90% of the mites had died by the second day when  
treated with (I), but only 48% died in three days when treated with  
kel'tan. After 15 days of treatment the activity of both compounds  
equilibrated with the number of surviving mites remaining around  
10%. Phytotoxic properties of both compounds were about the same.  
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USSR

UDC 632.951

PERMYAKOVA, N. M., SANIN, V. A., BABENKO, A. I., TKACHENKO, I. V.,  
BIT'KO, I. YA., TOPOROV, A. N., Ukrainian Scientific Research  
Institute of Plant Protection

"On the Effectiveness of Dilor Compound"

Moscow Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (83), Oct 70,  
pp 33-34

Abstract: The article is a report on tests conducted in 1968 and 1969 to determine the effectiveness of dilor (2-dihydroheptachlorine) against the common and gray beet weevils, as well as the Colorado beetle. The experiments were conducted on collective farms in the Mironovskiy Rayon of the Kiyevskaya Oblast. Contact and enteric action of the chemical was studied as well as the speed and duration of the effect of dilor alone and in combination with polychloropinene and DDT. When sprayed in warm weather (20-24°C), dilor was found to be as effective as DDT and polychloropinene, and even better than DDT with respect to speed. In hot weather, dilor was more effective than DDT and equivalent to polychloropinene, and at low temperatures the chemical was more active than polychloropinene and at least as 1/2

USSR

PERMYAKOVA, N. M., et al., Khimiya v S l'skom Khozyaystve, Vol 8, No 10 (83), Oct 70, pp 33-34

effective as DDT. Both binary mixtures were more rapid-acting than their separate components. Dilor has little effect against beet weevils, killing no more than 30% of this pest with maximum doses. Experiments in 1968 showed that dilor is effective against the Colorado beetle in all stages of development. In view of its low toxicity for warm-blooded animals (mean lethal dose 2000-9000 mg/kg), dilor should be considered as a substitute for DDT.

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USSR

UDC 632.95

VASHKOV, V. I., BABENKO, Z. I., and PERMYAKOVA, N. M.

"Insecticidal Properties of Dilor"

Tr. VNIi dezinfektsii i steriliz. (Works of the All Union Scientific Research Institute of Disinfection and Sterilization), 1971, vyp. 21, t. 2, pp 77-81 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18v421)

Translation: The results of experiments on studying the insecticidal activity of dilor by the method of enforced contact of insects with the surface of glass treated with a solution of dilor in acetone show that dilor is an insecticide equal in the strength of toxic effect to DDT and hexachlorocyclohexane on red cockroaches and bedbugs, and equivalent to DDT on houseflies. The minimum dose of dilor which ensures 100% destruction of lice with a one-hour exposure is  $0.5 \text{ g/m}^2$ ; for 100% destruction of the tick *Ixodes persulcatus*, the dose is  $1.4 \text{ g/m}^2$ . Heating the precipitated dilor for 2 hours at  $60^\circ\text{C}$  and exposure of the precipitate for 6 hours to ultraviolet rays (9000 luxes) causes almost no reduction in its toxicity for grain weevils. T. A. Belyayeva.

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- 69 -

1/2 014  
UNCLASSIFIED  
PROCESSING DATE--30OCT70  
TITLE--ION EXCHANGE IN ALKALI ALUMINOSILICATE GLASSES -U-  
AUTHOR--(03)--MOISEEV, V.V., PERMYAKOVA, T.V., PLOTNIKOVA, M.N.  
COUNTRY OF INFO--USSR  
SOURCE--GLASS TECHNOL. 1970, 11(1), 6-9  
DATE PUBLISHED--70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ION EXCHANGE, ALUMINOSILICATE GLASS, ION, SODIUM COMPOUND,  
POTASSIUM COMPOUND, RUBIDIUM COMPOUND, CESTUM COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1980  
CIRC ACCESSION NO--AP0125569  
STEP NO--UK/0000/70/011/001/0006/0009  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125569

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A COMPARATIVE STUDY WAS MADE OF THE KINETICS OF ION EXCHANGE IN ALKALI ALUMINOSILICATE GLASSES IN AQ. SOLNS. OF NA, K, RB, AND CS SALTS AND IN MELTS OF NA, K, AND AG SALTS. THE EXCHANGE RATE BETWEEN MELT AND GLASS WAS DETD. ONLY BY THE DIFFUSION OF THE IONS INTO THE GLASS. IN AQ. SOLNS. THE ION EXCHANGE PROCESS AT THE SURFACE INFLUENCED THE KINETICS. THE INTERDIFFUSION OF IONS WAS STUDIED IN THE GLASS SOLN. AND GLASS MELT SYSTEMS. IN BOTH SYSTEMS THE CONCN. OF ICNS IN THE LIQ. PHASE INFLUENCED THE QUANTITY OF IONS WHICH THE GLASS ABSORBED.

FACILITY: INST. SILICATE CHEM., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 550.348.425+624.131.551

ADUSHKIN, V. V., PERNIK, L. M., Moscow

"Characteristic Features of Collapse Sinking"

Novosibirsk, Fizika gorennya i vzryva, Vol 8, No 4, 1972, pp 541-552

Abstract: A study was made of the general laws of the collapse sinking process. The simulation method [M. A. Sadovskiy, et al., Dokl. AN SSSR, 167, 6, 1966] was used to investigate the nature of the movement of the ground, and the dimensions of the sinks were found in the charge depth range between the ejection explosions and the limiting depth of setting the charge. The critical values of the explosion parameters were determined (the depth of setting the charge, the radius and energy of the gas in the cavity) for which transition from an ejection sink to a collapse sink takes place. In this range the movement of the ground has a complex nature: part of the ground near the cavity caves in and the cavity "floats up," and the soil located near the free surface is ejected. The transformation of the form of the sink is traced. In some cases the sink radius is characterized by two values on the initial level of the ground surface. Relations were obtained for the height of the mushroom and the dimensions of the sinks (radius, depth and volume) as functions of the gas energy in the cavity and the ratio of the depth of laying the charge to the cavity radius. The breakthrough time for the gas from the cavity into the atmosphere

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USSR

ADUSHKIN, V. V., et al., Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 541-552

and the collapse time of the soil into the cavity were measured.

Comparison of these results with the results of actual explosions demonstrated that the relations obtained in the model experiments must be considered as the limiting estimate of the mechanical effect (the sink dimensions and the ejection or collapse parameters of the soil) for explosions in weakly-bound soil or on a sufficiently large scale when the properties of the fractured wave of soil are in accordance with the model conditions. The specific nature of the procedure did not allow studies of the scale of the explosion and the type of medium for which settling of the surface takes place. The effect of the physical-mechanical properties of the collapsed soil was not studied. Apparently the soil properties can have a significant effect on the size of the collapse sink and the breakthrough time for the gas and the collapse time of the soil.

2/2

USSR

PEROTSKAYA, A., Head of the Department of Communal Hygiene, Main Sanitary Epidemiological Administration, Ministry of Health USSR

"People Need Quiet"

Moscow, Meditsinskaya Gazeta, 24 Sep 71, p 2

Abstract: Since increasing industrial noise is detrimental to man's health, the CPSU will enforce the regulations specified in the article on Prevention and Elimination of Noise, contained in the Basic Legislation on Public Health in the Soviet Union and allied republics. These regulations will be incorporated into the work programs of all public boards, organization, and industrial enterprises, and they must also be observed by private citizens. Supervision will be entrusted to special commissions. The noise level must not exceed the norms established for residential houses, public buildings, and the various districts of cities and villages. New streets will be built wider, with trees and shrubs planted along curbs. Zoning regulations will determine the site of future industrial plants, airports, and other stations generating noise. These areas must be insulated from residential and business sections by wide green belts. Buildings housing stores should be constructed on the borderline between industrial and residential sections to

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USER

PEROTSKAYA, A., Meditsinskaya Gazeta, 24 Sep 71, p 2

function as a second insulating wall. All architects and builders will receive instructions on soundproofing to dampen noises coming from streets, neighboring apartments, and installations (water pipes, furnaces, elevators, and so on). Much attention will be paid to designing quiet means of transportation. Generation of undue noise by individual citizens or groups should be regarded as a violation of public order, subject to penalty. Scientific institutes should do more research in acoustic hygiene and come forth with effective practical solutions.

2/2

040 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--A ROTATING "HOUSE" IN SPACE -U-  
AUTHOR--PEROV, D.  
COUNTRY OF INFO--USSR  
SOURCE--TRUD, JUNE 18, 1970, P 4, COLS 1-4  
DATE PUBLISHED--18JUN70  
SUBJECT AREAS--SPACE TECHNOLOGY  
TOPIC TAGS--ARTIFICIAL GRAVITY, MANNED SPACECRAFT, ROTATION, SPACE  
STATION/(U)SOYUZ MANNED SPACECRAFT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/1588 STEP NO--UR/9025/70/000/000/0004/0004  
CIRC ACCESSION NO--AN0108008  
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0108008

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THE ARTICLE, THE DESIGN OF THE "SOYUZ" SPACE SHIP HAS BASICALLY SOLVED THE PROBLEM OF ARTIFICIAL GRAVITY, FOR THE SHIP CAN BE ROTATED ALONG ITS LONGITUDINAL AXIS. IT APPEARS THAT THE OPTIMUM RATE OF ROTATION MUST NOT BE GREATER THAN 4 RPM, AND THE ARTIFICIAL GRAVITY SHOULD BE 20-30 PERCENT OF THE NORMAL GRAVITY. THE SAME TECHNIQUE CAN BE APPLIED TO SPACE STATIONS. TWO OTHER DIFFERENT SOLUTIONS ARE POSSIBLE WHEN THE CENTRAL SECTION OF THE STATION IS STATIONARY AND ITS OUTSIDE COMPONENT IS ROTATING AROUND IT, OR A CENTRIFUGE IS INSTALLED IN THE STATIONARY STATION.

UNCLASSIFIED

USSR

UDC 612.014.46:662.767

PEROV, O. V., Chair of Hygiene, Ternopol Medical Institute

"Phase Character of the Cellular Reaction to Subtoxic Concentrations of Hydrocarbon Aerosols"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, Oct 70, pp 101-104

Abstract: Rats were forced to inhale anthracene oil aerosols (100 mg/m<sup>3</sup>) 6 hours daily for 60 days. Changes in the lung cells were evaluated from intravital sorption and the degree of granulation of neutral red, as well as from the amount of anthracene oil in the tissues. The reaction to the aerosol was marked by three phases. Phase 1, from the start of inhalation to the 5th day, reflected an inhibition of cellular functions. Phase 2, from the 6th day to the 18th day, was characterized by intensified enzymatic activity to eliminate the foreign substance, together with other signs of adaptation. Phase 3, from the 19th day to the end of the experiment, revealed an increasing inability on the part of the cells to withstand intoxication. Judging from the level of absorption of the dye, however, the cells of the lung parenchyma were only moderately changed, so that reversal of the injury was still possible.

1/1

USSR

UDC 629.783.014.525(47)

9

BALAYEV, N. F., GRODZOVSKIY, G. I., DANILOV, Yu. I., ZAKHAROV, V. E.,  
KRAVTSEV, N. F., KUZ'MIN, R. N., MAROV, M. Ya., MOROZOV, P. M.,  
NIKITIN, V. Ye., ~~PEROV, S. P.~~, PETUNIN, A. N., UTKIN, V. M., and  
SHVIDKOVSKIY, Ye. G.

"Scientific Data on the Flight of Automatic Ionospheric "Yantar"  
Laboratories"

Uch. zap. Tsentr. Aerogidrodinam. in-ta (Scientific Notes of the  
Central Aerohydrodynamic Institute) 1971, Vol 2, No 2, pp 58-65  
(from Referativnyy Zhurnal, Raketostroyeniye, No 11, Nov 71,  
Abstract 11.41.87 Resume)

Abstract: Launches of automatic ionospheric "Yantar" laboratories  
with gaseous plasma-ionic engines up to 100-400 km altitudes were  
conducted with the aid of geophysical rockets, for the purpose of  
studying prospects of controlled flight, in upper layers of the  
atmosphere. Performance of gaseous plasma-ionic engines under iono-  
spheric conditions was studied. Parameters characterising the  
ion jet-ionospheric plasma interaction, as well as parameters of  
neutral atmosphere were measured. Scientific data on conducted ex-  
periments is presented, 8 figures, 1 table, 11 references.

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SOLUBLE AND MITOCHONDRIAL FORMS OF PENTOSE CYCLE DEHYDROGENASES IN  
RABBIT SKELETAL MUSCLES -U-  
AUTHOR--(03)-RAZUMOVSKAYA, N.I., PLESKOV, V.M., PEROVA, T.L.  
COUNTRY OF INFO--USSR  
SOURCE--BIOKHIMIYA 1970, 35(1), 196-201  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MITOCHONDRION, DEHYDROGENASE, MUSCLE PHYSIOLOGY,  
HISTOCHEMISTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0647 STEP NO--UR/0218/70/035/001/0196/0201  
CIRC ACCESSION NO--AP0117873  
UNCLASSIFIED



2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MITOCHONDRIAL AND SOL. FORMS OF GLUCOSE,6,PHOSPHATE DEHYDROGENASE (I) AND 6,PHOSPHOGLUCONATE DEHYDROGENASE (II) WERE DETECTED IN SKELETAL MUSCLES OF ADULT RABBITS AND THEIR 25-6-DAY EMBRYOS. I PREVAILED IN MITOCHONDRIA AND II IN THE SOL. FRACTION OF THE CELL. ACTIVITIES OF SOL. I AND II WERE 4-5 TIMES AS HIGH IN DENERVATED AND EMBRYONIC AS IN INTACT MUSCLES AND THE ACTIVITIES OF MITOCHONDRIAL DEHYDROGENASES WERE 2-2.5 TIMES HIGHER. THE ACTIVITIES INCREASED CONSIDERABLY LESS IN TENDONOTOMIZED MUSCLES. DEHYDROGENASES IN DENERVATED AND EMBRYONIC MUSCLES WERE MORE SENSITIVE TO PH CHANGES (MAX. ACTIVITY AT PH SIMILAR TO 7.5 AND MIN. AT PH 8.0-8.5) THAN BOTH DEHYDROGENASES IN INTACT MUSCLES, WHICH INDICATED THAT THERE WERE PROBABLY CHANGES IN THEIR ISOZYME PATTERNS. HISTOCHEM. TECHNIQUES GAVE EVIDENCE THAT THE INCREASE OF BOTH DEHYDROGENASES DUE TO DENERVATION WAS NOT CAUSED BY THE REPLACEMENT OF MUSCULAR FIBRILS BY CONNECTIVE TISSUE BUT BY ABSENCE OF NERVE IMPULSES TO THE MUSCLES.

FACILITY: DIV. BIOCHEM., INST. EXP. MED., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 547.242

GATILOV, YU. F., and PEROV, V. A., Kazan' Pedagogical Institute

"Rearrangement of Tertiary Arsine Oxides. III. Rearrangement of Tripropylarsine Oxide Under the Influence of Electrophilic Reagents"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1138-1140

Abstract: The rearrangement of tripropylarsine oxide under the influence of a series of electrophilic reagents has been studied showing that it leads to the formation of respective esters with low yields. The main product of this rearrangement is tripropylhydroxyarsonium salt.

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1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--MAJORITY GRADIENT METHOD OF SOLVING PROBLEM OF SEQUENTIAL PROCEDURE  
OF CHECKING EFFICIENCY -U-  
AUTHOR--PEROV, V.I. P  
COUNTRY OF INFO--USSR  
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 2, PP 129-36  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATHEMATICAL SCIENCES  
TOPIC TAGS--PRODUCTION EFFICIENCY, STATISTIC ANALYSIS, SEQUENCE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1984/0104 STEP NO--UR/0103/70/000/002/0129/0136  
CIRC ACCESSION NO--AP0054900  
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0054900

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAJORITY GRADIENT METHOD OF DETERMINING THE STATISTICALLY OPTIMAL SEQUENTIAL STRATEGY OF CHECKING THE EFFICIENCY OF TECHNICAL DEVICES, THE METHOD BASED ON THE IDEAS OF THE SEQUENTIAL ANALYSIS AND THE ELIMINATION OF VARIANTS IS SUGGESTED.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--MATHEMATICAL MODELING OF THE NONISOHERMAL ABSORPTION OF  
FORMALDEHYDE IN PACKED COLUMNS WITH RECYCLE -U-  
AUTHOR-(04)-KAFAROV, V.V., PEROV, V.L., LUCHINA, YE.T., IVANOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 212-15  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MATHEMATIC MODEL, FORMALDEHYDE, GAS ABSORPTION, WATER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0139 STEP NO--UR/0064/70/046/003/0212/0215  
CIRC ACCESSION NO--AP0125955  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125955

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. EQUATIONS DESCRIBING THE NONISOTHERMAL ABSORPTION OF HCHO IN H SUB2 O, WHEN THE GASEOUS PHASE TEMP. IS HIGHER THAN THE TEMP. OF THE H SUB2 O AND THE LIQ. IS RECIRCULATED THROUGH A HEAT EXCHANGER, ARE DERIVED; CALCNS. WITH A DIGITAL COMPUTER SHOW THAT WHEN THE RATE OF RECIRCULATION IS INCREASED (UP TO A CERTAIN LIMIT) THE HCHO CONCN. IN THE GAS PASSING FROM ONE ABSORBER TO ANOTHER (AS WELL AS IN THE SPENT GASES) DECREASES, AND TO MINIMIZE THE LOSS OF HCHO WITH THE SPENT GASES THE PROCESS SHOULD BE CARRIED OUT AT LOW TEMPS. (8-10DEGREES). THE USE OF A DROPLET COLLECTOR AFTER THE ABSORBERS SHOULD ALSO REDUCE THE LOSSES OF HCHO.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--METHOD FOR CALCULATING MATERIAL AND ENERGY BALANCES OF COMPLEX  
CHEMICAL ENGINEERING SYSTEMS -U-  
AUTHOR-(03)-KAFAROV, V.V., PEROV, V.L., MESHALKIN, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAQ. NAUK SSSR 1970, 192(3), 598-601 (CHEM TECHNOL)  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CALCULATION, ENERGY THEORY, FLOW RATE, CHEMICAL ENGINEERING,  
MATHEMATIC MATRIX  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1218 STEP NO--UR/0020/70/192/003/0598/0601  
CIRC ACCESSION NO--AT0134892  
UNCLASSIFIED

2/2 026  
CIRC ACCESSION NO--AT0134892

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LOOP FLOW MODELS OF COMPLEX CHEM.  
ENGINEERING SYSTEMS ARE DESCRIBED AND A MATH. NONITERATIVE MATRIX  
APPROACH TO SOLVING MATERIAL AND ENERGY FLOWS OF SYSTEMS IS DEVELOPED  
AND DISCUSSED. FACILITY: MOSK. KHIM.-TEKHNOL. INST. IM.  
MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED



Acc. Nr.: AP0042541

Ref. Code: UR0362  
JPRS 50/62

Solution of Nonstationary Problems in Mesometeorology

(Abstract: "Nonstationary Problems in Mesometeorology," by L. N. Gutman and V. L. Perov, Computation Center, Siberian Department Academy of Sciences USSR, Moscow, Izvestiya Akademii Nauk SSSR, Fizika Atmosfery i Okeana, Vol VI, No 1, 1970, pp 3-13)

The authors formulate the mesometeorological problem of computing the spatial-temporal distribution of meteorological elements, taking into account the influence of the underlying surface. Processes whose horizontal scales are about 100 km are considered. Mesometeorological equations are derived which contain terms for taking into account the influence of the external pressure and temperature fields. These equations make it possible to formulate problems in mesometeorology as problems without initial conditions when the solution is determined by the "history" of the process. As an illustration of this approach the article gives the formulation of the nonstationary nonlinear problem of the motion of an air mass over complex relief. A numerical solution is given for a simple variant of the problem (the one-layer problem of the motion of air in a curving narrow valley bounded on the sides by high mountain ranges).

Reel/Frame  
19760508

USSR

UDC 547.242

GATILOV, YU. F., and PEROV, Y. A., Kazan' Pedagogical Institute

"Rearrangement of Tertiary Arsine Oxides. II. Rearrangement of Triethylarsine Oxide Under the Influence of Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1135-1137

Abstract: The rearrangement of triethylarsine oxide under the influence of alkyl halides was carried out at 80°C in benzene and at a 1:2 ratio of the reagents. In contrast to the rearrangement of fatty-aromatic arsine oxides and corresponding sulfides, the rearrangement of triethylarsine oxide goes in two directions. First of all it yields corresponding alkyl esters of diethylarsinous acid. In addition, the alkoxyarsonium salt can also split an ethylene group forming a hydroxyarsonium salt.

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